UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,939	02/23/2004	Erik J. Shahoian	IMMR-0052B	7661

60140 7590 03/28/2008

IMMERSION -THELEN REID BROWN RAYSMAN & STEINER LLP
P.O. BOX 640640
SAN JOSE, CA 95164-0640

EXAMINER	
LIANG, REGINA	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
03/28/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/782,939	SHAHOIAN ET AL.	
	Examiner	Art Unit	
	Regina Liang	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-9,12-20,22,23,26,27,30,31 and 37-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-9, 12-20, 22, 23, 26, 27, 30, 31, 37-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office action is responsive to amendment filed 2/7/08 and T.D filed 3/3/08. Claims 1, 3-9, 12-20, 22, 23, 26, 27, 30, 31, 37-42 are pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1, 3-9, 12-20, 22, 23, 26, 27, 30, 31, 37-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menahem (US 5,142,931) in view of Salcudean et al. (US Patent No. 5,790,108).

As to claim 1, Menahem discloses a control device (Figs. 1 and 2), comprising: a housing (the housing of grip 10) having a fixed portion (grip 10) and a moveable portion (the buttons on the grip 10), the moveable portion defined as an outer surface of the housing, the housing to be grasped by a user and the fixed portion moveable in three dimensions with respect to ground during operation (see col. 2, lines 58-59, and Fig. 1 shows the three dimensional movements are moved with respect to the ground 12), the moveable portion configured to move laterally with respect to the fixed portion (inherent that the buttons are moving up or down with respect to the grip 10), a sensor coupled to the housing and configured to measure positional values of the fixed portion when moved in the three dimensions (bearings 48, 50, 62, 64 coupled to the grip 10 for measuring the grip 10 moving in x, y and z axes).

Menahem does not disclose the device having a flexure member coupled to the moveable portion and the fixed portion and an actuator coupled to the flexure member and configured to output haptic feedback to the moveable portion of the housing via the flexure member. Salcudean is cited to teach a controller having a flexure member (Fig. 7, springs 128, 130) coupled to the moveable portion (the tactile element 22 could be a z button, see col. 7, lines 51-59) and the fixed portion (handle 18), wherein the flexure member is configured to allow selective movement of the moveable portion with respect to the fixed portion (see Fig. 7); and an actuator (E-core magnet 122 with a coil 124) coupled to the flexure member (springs 128, 130), the actuator configured to output haptic feedback to the moveable portion of the housing via the flexure member (see col. 7, lines 25-41 for example). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Menahem to have a flexure member coupled between the buttons and the fixed portion and an actuator coupled to the flexure member as taught by Salcudean so as to provide a control with permits the effective application of force feedback to impede or direct movement of the controller in three directions (col. 1, lines 52-55 of Salcudean).

As to claim 3, Menahem discloses the haptic feedback is output based on an oscillation of a shaft of the actuator (col. 5, lines 29-36).

As to claim 4, Fig. 7 of Salcudean discloses the flexure member (128, 130) includes a first flexure member (128) and a second flexure member (130), the first flexure member and the second flexure member being coupled between the moveable portion and the fixed portion, the actuator being configured to output the haptic feedback via at least one of the flexure members (see col. 7, lines 25-41 for example).

As to claim 5, Menahem discloses a manipulandum (the top portion of hand grip 10 as shown in Fig. 1) disposed adjacent to the moveable portion, the haptic feedback being imparted to the manipulandum.

As to claim 6, Menahem discloses a manipulandum (the top portion of hand grip 10 as shown in Fig. 1) disposed adjacent to the moveable portion; the haptic feedback being imparted to the manipulandum, the manipulandum is fixed in position with reference to the moveable portion.

As to claims 7, 8, Menahem discloses a button (on top of hand grip 10 as shown in Fig. 1) disposed adjacent to the moveable portion, the haptic feedback being imparted to the button (the haptic feedback is imparted to the hand grip 10 which includes the button).

As to claim 9, Salcudean discloses a second sensor (see col. 7, lines 55-58) coupled to the housing, the sensor being configured to detect a movement of the button along the degree of freedom when depressed.

As to claims 12, 30, Menahem discloses the device having a housing (housing of the grip 10) adapted to be engaged to an arm of a linkage mechanism about a single pivot point (see Fig. 2, the shaft 42 corresponds to arm of a linkage mechanism, the gimble mechanism 40 is a pivot point such that the grip 10 and the buttons together rotate about the pivot point), the linkage mechanism located externally from the housing and configured to allow the housing to move in three dimensions relative to group (Fig. 2 shows the shaft 20 and the gimble arrangement 40 are located outside of the hand grip 10), a first sensor configured to measure positional values of the housing when moved in the three dimensions (bearings 48, 50, 62, 64 coupled to the grip 10 for

measuring the grip 10 moving in x, y and z axes), and a button disposed on the housing. Salcudean discloses a button having a button sensor (col. 7, lines 55-58).

As to claim 13, Salcudean discloses the actuator (124, Fig. 7) is a voice coil.

As to claim 14, Salcudean discloses the actuator (124) includes a coil coupled to the button and a magnet coupled to a housing in which the button is disposed (see Fig. 7).

As to claim 15, Salcudean discloses the actuator (124) includes a magnet coupled to the button and a coil coupled to a housing in which the button is disposed (see Fig. 7).

As to claim 16, Salcudean discloses the sensor is an analog sensor configured to output a position signal, the position signal associated with a position of the button (see col. 7, lines 51-58).

As to claim 17, Salcudean discloses haptic feedback includes a vibratory force produced as a function of time (e.g. damping force).

As to claim 18, Salcudean discloses haptic feedback includes a spring force (128, 130, Fig. 7) produced as a function of the displacement of the button.

As to claim 19, Salcudean discloses the haptic feedback includes a damping force produced as a function of a velocity of the button because the button is connected to the spring.

As to claim 20, Salcudean discloses a flexure member (128, 130) coupled to the button and a housing in which the button is disposed.

As to claim 22, it is noted that Salcudean the force input device can be a mouse and a joystick but fails to mention a trackball. However, trackball is a well-known input device in the art. It would have been obvious to one of ordinary skill in the art to have applied the actuator of

Salcudean for any kind of the cursor input device such as the trackball because the actuator can be fitted into different handheld input device.

As to claim 23, Salcudean discloses a housing, the button disposed in the housing; and a joystick coupled to the housing, the joystick configured to control a position of a graphical object (see Figs. 8 and 12).

As o claim 26, Salcudean discloses the actuator being a first actuator (70, Fig. 1), the device further comprising a second actuator (72, Fig. 1) configured to output a vibration.

As to claim 27, Salcudean discloses isometric controller (e.g. mouse or joystick) configured to control a position of a cursor in a graphical display (see Fig. 12).

As to claim 31, Figs. 7, 8 of Salcudean discloses a button (22, 132) is integral to a housing (18, 137) having affixed portion (18, 137) and a moveable portion (22, 132), the fixed portion and the moveable portion configured to be engaged by one hand of a user.

As to claims 38, 39, Fig. 1 and 2 of Menahem shows the fixed portion (grip 10) is coupled to a linkage mechanism (shaft 42) located externally thereto (see Fig. 2 shows the shaft 20 is located outside of the hand grip 10), wherein the fixed portions (grip 10) is at least rotatable with respect to the linkage mechanism.

As to claim 37, note the discussion of claims 1 and 12 above. Furthermore, Menahem teaches a first sensor (bearings 48, 50, 62, 64) coupled to the fixed portion (grip 10) and configured to provide sensor data regarding movement of the fixed portion of the housing in three dimensions with respect to ground, and Salcudean teaches a second sensor (col. 7, lines 49-58) coupled to the moveable portion (button) and configured to provide sensor data regarding the movement of the button with respect to the fixed portion of the housing.

As to claims 40-42, Menahem teaches the moveable portion (button) moves relative to the fixed potion in a direction parallel to the outer surface (button is moving up or down with respect to the grip 10).

Response to Arguments

4. Applicant's arguments filed 2/7/08 have been fully considered but they are not persuasive.

Applicant's remarks regarding Menahem and Salcudean on pages 10-12 are not persuasive. Applicant's allegation in that "neither Menahem nor Salcudean discloses that the fixed portion of the housing is moveable in a three dimensions and that a senor measures positional values of the fixed portion when it is moved in the three dimensions" are not persuasive. Col. 2, lines 58-60 of Menahem discloses "Hand grip 10 is adapted to be grasped by the hand of a controller and to move about three orthogonal axes, X, Y and Z, in a rotary fashion" and Figs. 1 and 2 of Menahem clearly show that the hand grip 10 (fixed portion of the housing) is moveable in three dimensions with respect to ground (12). Menahem also teaches using the bearings 48, 50, 62, 64 coupled to the grip 10 for detecting the movements of the hand grip 10 moving in x, y and z axes, see col. 4, line 4-42 of Menahem. Therefore, the combination of Menahem and Salcudean teaches the limitation as claimed.

Applicant's remarks regarding claim 12 are not persuasive. Fig. 2 of Menahem discloses the device having a housing adapted to be engaged to an arm of a linkage mechanism about a single pivot point (the shaft 42 in Fig. 2 corresponds to arm of a linkage mechanism, the gimble mechanism 40 is a pivot point such that the grip 10 and the buttons together rotate about the

pivot point), the linkage mechanism located externally from the housing and configured to allow the housing to move in three dimensions relative to group (Fig. 2 shows the shaft 20 and the gimble arrangement 40 are located outside of the hand grip 10), a first sensor configured to measure positional values of the housing when moved in the three dimensions (bearings 48, 50, 62, 64 coupled to the grip 10 for measuring the grip 10 in x, y and z movements), and a button disposed on the housing. Salcudean discloses a button having a button sensor (col. 7, lines 55-58). Therefore, applicant's argument regarding claim 12 are not persuasive.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Regina Liang/
Primary Examiner, Art Unit 2629